Section I: AQMD BACT Determinations

Application No.: 388869

Equipment Category – I.C. Engine, Stationary, Non-Emergency

1.	GENERAL INFORMATION			DATE: 8/15/200)6			
Α.	MANUFACTURER: Waukesha							
В.	TYPE: Rich-Burn		C. MODEL:	L7044GSI				
D.	STYLE: Turbocharged, aftercooled							
E.	APPLICABLE AQMD RULES: 1110.2, Reg. XIII							
F.	COST: \$ (NA) SOURC	E OF COS	T DATA:					
G.	OPERATING SCHEDULE: 6 HRS/DAY	,	2 [[]	DAYS/WK	8 WKS/YR			
2.	EQUIPMENT INFORMATION			APP. NO.: 38886	9			
Α.	FUNCTION: Engine No. 2 of seven identical engine-generator sets producing power during							
_	high-demand (weekend) periods.							
В.	12.75 MMBtu/hr		C. MAXIMUM THROUGHPUT: 1695 BHP					
D.	BURNER INFORMATION: NO.:	TYPE	TYPE:					
E.	PRIMARY FUEL: Natural Gas		F. OTHER FUEL:					
G.	G. OPERATING CONDITIONS: Steady, full load, mainly winter holiday weekends							
3.	COMPANY INFORMATION			APP. NO.: 38886	9			
Α.	NAME: Bear Valley Electric Service C	enter			B. SIC CODE: 4911			
C.	ADDRESS: 42020 Garstin Rd	ADDRESS: 42020 Garstin Rd						
	CITY: Big Bear Lake	STATE: CA ZIP: 92315			^{P:} 92315			
D.	CONTACT PERSON: Tracey Drabant			E. PHONE NO.: 9	09-866-1666			
4.	PERMIT INFORMATION			APP. NO.: 38886	9			
Α.	AGENCY: SCAOMD		B. APPLICA	TION TYPE: new cor	struction			
C.	AGENCY CONTACT PERSON: Roy Olivares			D. PHONE NO.: Q	09-396-2208			
F		P/C N	0: 0000 60		ICE DATE: 0/2/2001			
_ .		P/O N	o.: 388869 o.:	ISSUAN	ICE DATE: 8/3/2001			
F.	START-UP DATE: May 2004							
	1111 2001							
5.	EMISSION INFORMATION			APP. NO.: 38886	9			
Α.	PERMIT							
A1.	PERMIT LIMIT: Maximum 3000 hours per	year c	operation.	PPMVD@15%C	02: NOx-7.3, CO-36,			
4.2	VUC-11. NUX/U2 CEMS.							
A2.	BACI/LAER DETERMINATION: Concentration limits in 5A1.							

5.	EMISSION INFORMATION		APP. NO.: 388869						
A3.	BASIS OF THE BACT/LAER DETERMINATION: The NOx and VOC limits were set by the applicant to stay								
	below RECLAIM/Title V thresholds. The CO limit was offered by the applicant even								
	though prior BACT would have been below the CO threshold.								
В.	CONTROL TECHNOLOGY								
B1.	MANUFACTURER/SUPPLIER: Johnson Matthey catalyst. The air/fuel ratio controller was originally								
	an Altronic but in August 2005 was replaced by Contnental Controls ECV-5, at which time								
	the O2 sensors were upgraded from unheated (UEGO) to heated (HEGO).								
B2.	TYPE: Three-way catalyst								
B3.	DESCRIPTION: The air/fuel ratio controller is programmed to maintain the engine at or very								
	near stoichiometric combustion (exact air theoretically required to burn the fuel). Under								
	this condition, the engine will produce enough CO and unburned hydrocarbons to react								
	with and destroy the NOx but will also have some residual O2. The three-way catalyst								
	promotes both NOx destruction reactions and CO/HC oxidation so that both NOx and								
D4	CO/HC are virtually eliminated from t	he exhaust.							
D4.	CONTROL EQUITMENT FERMITAL FEICHTON DATA.	P/O NO.:	ISSUANCE DATE:						
B5	WASTE AIR FLOW TO CONTROL FOUNDMENT								
55.	ACTUAL CONTAMINANT LOADING:	FLOW RATE: BLOWER HP							
B6	WARRANTY O I I I V	00.20/ 00							
B7	Guaranteed reductions: NOX	-99.3%, CO-	97.7%, NMHC-75%						
D7.	PRIMARY PULLUTANTS: NOX, CO, VOC								
В8.	SECONDARY POLLUTANTS:								
B9.	SPACE REQUIREMENT:								
B10.	LIMITATIONS:		B11. UNUS	ED					
B12.	OPERATING HISTORY: Operation is mainly of	n winter holic	lay weekends, when from two to five	e					
	engines typically operate for typically	6 hours per d	ay. All operation is at full load. Tot	al					
	operation in 2005 was 1550 engine-ho	tion in 2005 was 1550 engine-hours.							
B13.	UNUSED	B14. UNUSED							
С.	CONTROL EQUIPMENT COSTS								
C1.	CAPITAL COST: CHECK IF INSTA	LLATION COST IS IN	CLUDED IN EQUIPMENT COST						
	EQUIPMENT: \$ INSTALLATION: \$	(NA) SOURC	SE OF COST DATA:						
C2.	ANNUAL OPERATING COST: \$ (NA)	SOURC	COST DATA:						
D.	DEMONSTRATION OF COMPLIANCE								
D1.	STAFF PERMFORMING FIELD EVALUATION:								
	ENGINEER'S NAME: INSI	PECTOR'S NAME:	Travis Brooks/Tom Rooney	::					
	2/26/2005								
D2.	COMPLIANCE DEMONSTRATION: Engines 2, 3 an	d 6 were ope	rating. Land portable analyzer tests						
	showed the following results (NOx/CO/O2 as ppmvd@15%O2 and dry % O2): Engine No.								
	2-5/33/1.0, Engine No. 3-11/29/1.1, Engine No. 6-6/23/0.9. Most of the O2 was from the								
	crankcase oreamer vent, which vents to the engine exhaust pipe. NOX CEIVIS data were not available because the portable analyzer utilized the CEMS sample line.								
1	available because the portable analyzer utilized the CEMS sample line.								

5. EMISSION INFOR	MATION			APP.	^{NO.:} 38	8869			
D3. VARIANCE: NO. OF V	ARIANCES: Non	e	DATES	S:					
CAUSES:									
D4. VIOLATION: NO. OF V	IOLATIONS: 1		DATES	^{3:} 2/26/2	2005				
CAUSES: Engine No. 3 f	ound exceeding	ıg NOx	limit						
D5. MAINTENANCE REQUIREMENTS:							De	. UNUSED	
D7. SOURCE TEST/PERFORMANCE DA	7. SOURCE TEST/PERFORMANCE DATA RESULTS AND ANALYSIS:								
DESTRUCTION EFFICIENCY:	DATE OF SOURCE TEST: 6/4-20, 2004 and 8/24-10/12/2005 CAPTURE EFFICIENCY: DESTRUCTION EFFICIENCY: OVERALL EFFICIENCY:								
SOURCE TEST/PERFORMANCE DA	IA:								
June 2004 (Altronic air/fue	l ration contro	ollers):							
Engine	1	2	3	4	5	6	7		
Date	6/19	6/16	6/8	6/20	6/4	6/9	6/19		
BHP	1695	1695	1676	1695	1676	1678			
O2, % (dry)	0.79	0.76	0.58	0.67	0.81	0.44	0.7		
NOx, ppmvd@15%O2	5.7	6.4	5.9	4.6	2.9	2.7	3.1		
CO, ppmvd@15%O2	16.6	15.3	19	15.8	18.2	13.9	4.0		
VOC, ppmvd@15%O2 as 0	CH4 6.5	3.3	4.8	4.8	4.4	9.3	6.5		
August - October 2005 (Continental Controls air/fuel ratio controllers):									
Engine	1	2	3	4	5	6	7		
Date	10/12	8/30	8/2	10/12	8/31	8/29	8/29		
NOx, ppmvd@15%O2	6.4	5.0	3.5	3.1	3.2	5.2	3.9		
CO, ppmvd@15%O2	29	23	24	18	12	26	16		
VOC, ppmvd@15%O2 as (OPERATING CONDITIONS: Full	CH4 1.4	4.3	5.9	2.1	5.9	4.4	4.8		
TEST METHODS: AQMD Methods 100.1 and 25.3									
6. COMMENTS			APP.	APP. NO.: 388869					
These engines have a full-time operator. In addition to the NOx CEMS, CO is checked using a portable analyzer if emissions do not seem normal or work has been performed on the engine.									

Since there is no CO CEMS and rich-burn engines can easily drift to high-CO (and high-VOC) operation, the permitting team plans to add a condition requiring that the CO be measured using a portable analyzer each time the engine operates or periodically based on hours of operation. The max fuel was corrected 8/15/06 from 1.275 to 12.75 MMBtu/hr.